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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/255,549 | 02/22/1999 | HIDEO KAWAHARA | 1232-4511 | 8742 |

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NEW YORK, NY 10154

| EXAMINER | |
|---|---|
| HANNETT, JAMES M | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2612 | 13 |

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/255,549 | KAWAHARA ET AL. | |
| | Examiner | Art Unit | |
| | James M Hannett | 2612 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Response to Arguments*

Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

**4:** Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,526,045 Oshima et al in view of USPN 6,122,004 Hwang in further view of USPN 5,502,483 Takase et al.

5: As for Claim 1, Oshima et al depicts in Figure 33 an image sensing method comprising:

A vibration detecting step of detecting vibration on an image sensing apparatus main body; Column 50, Lines 20-28, The vibration detection step is performed by the Pitch and Yaw fluctuation detectors (8a and 8b) on the camera main body (1). A calculating step of calculating a correction variable based on vibration data indicative of the vibration of the image sensing apparatus main body detected in the vibration detection step; Column 50, Lines 21-26. The calculating step being the calculations to determine the fluctuation correction amounts in each of the horizontal and vertical directions calculated by the fluctuation control circuit (9) based on the data from the fluctuation detectors. A control step of controlling a timing of reading an image signal from an image sensing device based on a calculation result of the calculating step; Column

30, Lines 12-17. The horizontal and vertical drive units control the timing of readout of the image sensor. The horizontal and vertical drive circuits are further controlled in response to the Pitch and Yaw fluctuations calculated by the fluctuation control circuit.

Oshima et al does not teach the use of a delaying step of delaying the read image signal by a predetermined time; An adding step of adding the read image signal to the delayed image signal, delayed in the delaying step, at a predetermined addition ratio based on the calculation result of the calculating step; and an addition control step of prohibiting addition of the adding step when sensing a still image.

Hwang teaches in Figure 6 and on Column 4, Lines 44-66, the use of a delaying step of delaying the read image signal by predetermined time (66 and 63). An adding step (65) of adding the read image signal to the delayed image signal, delayed in the delaying step, at a predetermined addition ratio based on the calculating result of the calculating step in a moving image recording mode. An addition control step of prohibiting addition of the adding step in a still image recording mode. The delay step for delaying the read image signal by a predetermined time is performed by the first buffer and the image shifting means. The image adding means adds the delayed read image signal output by the image shifting means (63) with the read image signal output by the second buffer (64). The predetermined adding ratio changes in that the amount of image in the second buffer (64) added to the delayed image is proportional to how much shift was imposed on the image in the image shifting means (63) controlled by the motion detector. Furthermore, it is inherent that if the image was a still image no shifting would take place in the image shifting means (63) and therefore, no portion of the image in the second buffer (64) would be added to the delayed image.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the camera of Oshima et al so that the output image signals from the image sensor can be processed by the image signal correction circuit of Hwang to enable the camera of Hwang to better process both still and motion video.

Oshima et al in view of Hwang teaches a method of performing motion correction for an image. However, Oshima et al in view of Hwang does not teach the process of performing a fine pixel shifting, which accompanies a correction calculation for an amount less than one pixel unit so as to eliminate a resolution of unevenness, wherein first pixel data is added to second pixel data wherein the pixels are neighboring each other.

Takase et al teaches on Column 3, Lines 57-67 and Column 4, Lines 4-16 and Column 2, Lines 55-60 that it is advantageous when correcting for image vibration to allow the camera to correct for a movement amount that is less than one pixel area by performing interpolation by adding in a weighted manner the pixel data from adjacent lines of pixel data. Takase et al teaches that this is advantageous because it allows the deterioration of a resolution to be suppressed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Oshima et al in view of Hwang to correct for motion that is less that the distance of one pixel by performing interpolation by adding in a weighted manner the pixel data from adjacent lines of pixel data as taught by Takase et al in order to allow the deterioration of a resolution to be suppressed.

6: In regards to Claim 2, Oshima et al teaches on Column 10, Lines 2-14 the use of a switching step of switching between a still image sensing mode and a moving image sensing

mode, and a recording step of performing recording operation of the still image based on a mode switched in the switching step.

7: As for Claim 3, Oshima et al depicts in Figure 33 an image sensing method comprising:

A vibration detecting step of detecting vibration on an image sensing apparatus main body; Column 50, Lines 20-28, The vibration detection step is performed by the Pitch and Yaw fluctuation detectors (8a and 8b) on the camera main body (1). A calculating step of calculating a correction variable based on vibration data indicative of the vibration of the image sensing apparatus main body detected in the vibration detection step; Column 50, Lines 21-26. The calculating step being the calculations to determine the fluctuation correction amounts in each of the horizontal and vertical directions calculated by the fluctuation control circuit (9) based on the data from the fluctuation detectors. A control step of controlling a timing of reading an image signal from an image sensing device based on a calculating result of the calculating step in a moving image recording mode; Column 30, Lines 12-17. The horizontal and vertical drive units control the timing of readout of the image sensor. The horizontal and vertical drive circuits are further controlled in response to the Pitch and Yaw fluctuations calculated by the fluctuation control circuit.

Oshima et al does not teach the use of a delaying step of delaying the read image signal by a predetermined time; An adding step of adding the read image signal to the delayed image signal, delayed in the delaying step, at a predetermined addition ratio based on the calculation result of the calculating step; and an addition control step of prohibiting addition of the adding step when sensing a still image.

Hwang teaches in Figure 6 and on Column 4, Lines 44-66, the use of a delaying step of delaying the read image signal by predetermined time (66 and 63). An adding step (65) of adding the read image signal to the delayed image signal, delayed in the delaying step, at a predetermined addition ratio based on the calculation result of the calculating step. An addition control step of prohibiting addition of the adding step in a still image recording mode. The delay step for delaying the read image signal by a predetermined time is performed by the first buffer and the image shifting means. The image adding means adds the delayed read image signal output by the image shifting means (63) with the read image signal output by the second buffer (64). The predetermined adding ratio changes in that the amount of image in the second buffer (64) added to the delayed image is proportional to how much shift was imposed on the image in the image shifting means (63) controlled by the motion detector. Furthermore, it is inherent that if the image was a still image no shifting would take place in the image shifting means (63) and therefore, no portion of the image in the second buffer (64) would be added to the delayed image. Therefore, the adding ratio would be 1:0 and would not be performed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the camera of Oshima et al so that the output image signals from the image sensor can be processed by the image signal correction circuit of Hwang to enable the camera of Hwang to better process both still and motion video.

Oshima et al in view of Hwang teaches a method of performing motion correction for an image. However, Oshima et al in view of Hwang does not teach the process of performing a fine pixel shifting, which accompanies a correction calculation for an amount less than one pixel unit

so as to eliminate a resolution of unevenness, wherein first pixel data is added to second pixel data wherein the pixels are neighboring each other.

Takase et al teaches on Column 3, Lines 57-67 and Column 4, Lines 4-16 and Column 2, Lines 55-60 that it is advantageous when correcting for image vibration to allow the camera to correct for a movement amount that is less than one pixel area by performing interpolation by adding in a weighted manner the pixel data from adjacent lines of pixel data. Takase et al teaches that this is advantageous because it allows the deterioration of a resolution to be suppressed.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Oshima et al in view of Hwang to correct for motion that is less that the distance of one pixel by performing interpolation by adding in a weighted manner the pixel data from adjacent lines of pixel data as taught by Takase et al in order to allow the deterioration of a resolution to be suppressed.

8: In regards to Claim 4, Oshima et al teaches on Column 10, Lines 2-14 the use of a switching step of switching between a still image sensing mode and a moving image sensing mode, and a recording step of performing recording operation of the still image based on a mode switched in the switching step.

9: As for Claim 5, Claim 5 is rejected for reasons related to Claim 1, since Claim 1 is substantively equivalent to Claim 5.

10: In regards to Claim 6, Claim 6 is rejected for reasons related to Claim 2, since Claim 2 is substantively equivalent to Claim 6.

11: As for Claim 7, Oshima et al further teaches on Column 8, Lines 31-40 that the vibration detection means is an angular velocity sensor (21A-21B).

12: In regards to Claim 8, Claim 8 is rejected for reasons related to Claim 3, since Claim 3 is substantively equivalent to Claim 8.

13: As for Claim 9, Claim 9 is rejected for reasons related to Claim 4, since Claim 4 is substantively equivalent to Claim 9.

14: In regards to Claim 10, Claim 10 is rejected for reasons related to Claim 7, since Claim 7 is substantively equivalent to Claim 10.

15: As for Claim 11, Claim 11 is rejected for reasons related to Claim 1, since Claim 1 is substantively equivalent to Claim 11.

16: In regards to Claim 12, Claim 12 is rejected for reasons related to Claim 2, since Claim 2 is substantively equivalent to Claim 12.

17: As for Claim 13, Claim 13 is rejected for reasons related to Claim 3, since Claim 3 is substantively equivalent to Claim 13.

18: In regards to Claim 14, Claim 14 is rejected for reasons related to Claim 4, since Claim 4 is substantively equivalent to Claim 14.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M Hannett whose telephone number is 703-305-7880. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
March 8, 2004

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
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